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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,793	03/30/2001	Sanghoon Lee	Lee 1-17	7445

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EXAMINER

BRIER, JEFFERY A

ART UNIT PAPER NUMBER

2628

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/823,793

Applicant(s)

LEE ET AL.

Examiner

Jeffery A. Brier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-25, 31-34, 36, 38 and 40-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-25, 31-34, 36, 38, and 40-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/12/2006 has been entered.

Response to Amendment

2. The amendment filed on 6/12/2006 has been entered.

Response to Arguments

3. Applicant's arguments filed 6/12/2006 have been fully considered but they are not persuasive. The limitations added to claims 20, 25, 40, 45, and 46 do not overcome Heinzelman because applicants' specification defines focal point of an eye in the background description of the human eye at page 1 line 21 to page 2 line 5, especially noting page 2 lines 3-5. Applicants' specification defines the foveation point 16 of applicants system as the focal center of the foveation area 12 which foveation area 12 is defined at page 5 line 3 to page 6 line 18 as being the portion of the image that is determined by the methods discussed at page 5 line 3 to page 6 line 18. Thus, applicants' specification does not convey to one of ordinary skill in the art "defining a

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foveation point in the video image based on a focal point of an eye" as claimed in claims 20, 25, 40, and 45 and does not convey to one of ordinary skill in the art "decoding a first signal indicative of at least one foveation area around a foveation point in a video image, the foveation point being based on a focal point of an eye" as claimed in claim 46. Applicant defines determining the foveation area 12 by many methods one of which is based upon motion, refer to page 5 line 5. Heinzelman's area is determined by motion. Since both applicant and Heinzelman determine an area for increased error encoding by the same method, motion, then Heinzelman's area meets the claimed foveation area. Applicant needs to exclude motion and pattern detection from the claims as a means of selecting the foveation area. Applicant needs to exclude using a pointing device (eye tacking, conventional 2D input devices,), which is discussed in the article Adaptive Foveation of MPEG Video (see page 233) cited on the 2/20/2004 PTO-892, from the claims as a means of selecting the foveation area. The article selects the foveation area for MPEG encoding purposes. Applicant needs to exclude pointing a camera as a means of selecting the foveation area as discussed in the specification at page 2 line 16 to page 3 line 4.

Oath/Declaration

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It was not executed in accordance with either 37 CFR 1.66 or 1.68.

The date for Sanghoon Lee is incomplete, it lacks the year of execution.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 20-25, 31-34, 36, 38, and 40-46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants' specification defines the foveation point 16 of applicants' system as the focal center of the foveation area 12 which foveation area 12 is defined at page 5 line 3 to page 6 line 18 as being the portion of the image that is determined by the methods discussed at page 5 line 3 to page 6 line 18. The specification describes first defining the foveation area 12 and then based upon the foveation area 12, the foveation center 16 "can be defined as a focal center of the foveated area 12" (applicants specification at page 6 lines 1-2), but, the specification does not describe how the methods discussed at page 5 line 3 to page 6 line 18 will determine the focal point of an eye for the foveated area 12. Thus, applicants' specification does not convey to one of ordinary skill in the art "defining a foveation point in the video image based on a focal point of an eye" as claimed in claims 20, 25, 40, and 45 and does not convey to one of ordinary skill in the art "decoding a first signal indicative of at least one foveation area around a foveation point in a video image, the foveation point being based on a focal point of an eye" as claimed in claim

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46. At the most page 5 line 3 to page 6 line 18 and figures 1 and 1a teach to one of ordinary skill in the art determining the center of the foveation area 12 as foveation point 16. Additionally the specification does not convey first defining the foveation point and second defining the foveation area in proximity to the foveation point as claimed in claims 20, 25, 40, and 45.

7. The prior art rejection set forth in the last office action is reproduced below with minor enhancements to the definition of defining a foveation point.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 20-25, 31-34, 36, 38, 45 and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Heinzelman et al., U.S. Patent No. 6,754,277.

Heinzelman teaches applying greater error protection coding to motion portions of the video and lesser error protection coding to texture portions of the video.

Heinzelman teaches determining the foveation point of video by determining the point or points of motion. The foveation area is the area of video forming the moving objects.

A detailed analysis of the claims follows.

Claim 20:

Heinzelman teaches a method for partitioning a video image between a foveated area (Applicants specification at page 5 line 5 describes the foveation area as an area of motion. Since applicants specification defines foveation point and foveation area as an area having motion activity in the image, then applicants claims claim this. Applicant needs to amend the claims to exclude the means and method that Heinzelman uses to determine the area of motion in order to overcome the rejection. Applicant needs to amend the claims, rather than just presenting arguments directed to additional definitions given by applicant concerning foveation point and area, in order to overcome the rejection.) and a background area (The background area is the area of the video that is not a part of the foveation area, the texture includes at least the background.) comprising the steps of:

defining a foveation point in the video image (The point of the motion is the foveation point. Inherently the motion was determined and defined to form the motion data.) based on a focal point of an eye (Since the specification does not describe how the focal point of the eye will be determined then the point of the motion in the video image corresponds to the claimed focal point of an eye.);

defining a foveated area in proximity to said foveation point (*The area surrounding the detected motion point is the area. Inherently the area surrounding a motion point was determined and defined to form the motion area.*);

extracting the first plurality of data signals from said video image representing said foveated area (*The encoder extracts the data signals corresponding to the motion data.*);

extracting a second plurality of data signals from said video image representing a background area (*The encoder extracts the data signals corresponding to the texture data.*);

encoding the extracted first plurality of data signals with a first error correction protocol to create a first encoded signal (*The encoder encodes the extracted data signals corresponding to the motion data with a first FEC coding.*); and

encoding the extracted second plurality of data signals with a second error correction protocol different from the first error correction protocol to create a second encoded signal (*The encoder encodes the extracted data signals corresponding to the texture data with a second FEC coding.*), wherein the first error correction protocol comprises a first FEC algorithm (*See column 3 lines 1-5, 21-25, 38-40 and 57-62.*) and a second error correction protocol comprises a second FEC algorithm, the first FEC algorithm being more powerful than the second FEC algorithm (*See column 2 lines 46-50.*).

Claim 21:

Heinzelman teaches the method according to claim 20, wherein the step of defining said foveation point comprises the step of:

pointing a video device at a location of the image using a means for pointing (*To determine the areas of motion inherently a video device was pointed at all of the locations of the image to determine the locations having motion. Thus, this broad claim to pointing is met by determination of motion that was required to form the motion data in Heinzelman. Since applications specification discusses detecting motion then the claimed means for pointing is met by the means for detecting motion used to form the motion data in Heinzelman.*).

Claim 22:

Heinzelman teaches the method according to claim 21, wherein the pointing means comprises at least one of (*Heinzelman teaches at least one of the following because the system used to determine the motion inherently has one of the following computer components.*):

a computer keyboard (*Used by all computer equipment to allow the user to interface with the computer, the keyboard may be directly or indirectly connected to the computer. Inherently when determining the motion in the video a computer input device was used by the operator to direct the system to analyze the*

video with a video device that analyzes the video to determine portions of the video that have motion.);

a computer mouse (Used by many computer equipment to allow the user to interface with the computer, the mouse may be directly or indirectly connected to the computer. Inherently when determining the motion in the video a computer input device was used by the operator to direct the system to analyze the video with a video device that analyzes the video to determine portions of the video that have motion.);

a joystick (Used by many computer equipment to allow the user to interface with the computer, the joystick may be directly or indirectly connected to the computer. Inherently when determining the motion in the video a computer input device was used by the operator to direct the system to analyze the video with a video device that analyzes the video to determine portions of the video that have motion.), and

an eye tracking device (Used by many computer equipment to allow the user to interface with the computer, the eye tracker may be directly or indirectly connected to the computer. Inherently when determining the motion in the video a computer input device was used by the operator to direct the system to analyze the

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video with a video device that analyzes the video to determine portions of the video that have motion.).

Claim 23:

Heinzelman teaches the method according to claim 20 further comprising the step of:

calculating a local bandwidth threshold based on said foveation point (*This is a broad term and is met by the inherent motion analysis of the video where a point of motion is determined and a surrounding area is included with the point of motion.); and*

wherein the step of defining said foveation area comprises the steps of:

calculating a local bandwidth for each pixel group in said video image (*The local bandwidth is the pixels having motion corresponding the point of motion.); and*

incorporating those pixel groups having a respective local bandwidth above said local bandwidth threshold into said foveation area (*The area of pixels in the video corresponding to the object having motion have a local bandwidth above a threshold bandwidth corresponding to the background having no motion.).*

Claim 24:

Heinzelman teaches the method according to claim 20 further comprising the steps of:

packetizing the first encoded signal with inserted synchronization markers occurring after a first predetermined number of bits (*See column 3 line 63 to column 4 line 65. 155 bits is used as the first number.*); and

packetizing the second encoded signal with the inserted synchronization markers occurring after a second predetermined number of bits wherein the first number is smaller than the second number (*500 bits is used as the second number. Clearly 155 bits is smaller than 500 bits.*).

Claim 25:

Lines 3-11 are identical to lines 3-12 of claim 20. The discussion of lines 3-12 of claim 20 are incorporated by reference. Lines 1-3 and 12-17 of claim 25 will be discussed.

Lines 1-3

Heinzelman teaches a method for the processing of video image data received from a first electronic device (*encoder*), the first electronic device having performed the steps of:

Lines 3-11:

see discussion of claim 20.

Lines 12-17:

the method comprising the steps of:

decoding the first transmitted encoded signal (*the decoder decodes the encoded signal, see column 5 lines 1-3.*);

correcting errors within the first transmitted encoded signal with the use of a high priority processing step to create a received foveated area (*The decoder uses a higher priority processing step to decode the motion data rather than the texture data, column 7 lines 13-16.*);

decoding the second transmitted encoded signal (*The decoder decodes the encoded texture data.*); and

correcting errors within the second transmitted encoded signal with use of a low priority processing step to create a received a background area (*The texture data is decoded with a lower priority step, column 7 lines 13-16.*).

Claim 31:

Heinzelman teaches the method according to claim 20 wherein the first plurality of data signals comprises all pixel signals included in a high-resolution area (*The term high resolution is a broad term and is met by the motion area of the video image.*) of said video image.

Claim 32:

Heinzelman teaches the method according to claim 20 wherein the first plurality of data signals comprises all pixel signals that are included in a high motion area of said video image (*The patent as a whole teaches the first plurality of data signals comprises all pixel signals that are in a high*

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motion area even though a preferred implementation of the system limits the first plurality of data signals to 155 bits.).

Claim 33:

Heinzelman teaches the method according to claim 20 wherein the first error correction protocol conforms to video communications industry standards H263++ and/or MPEG-4 *(The first FEC and the second FEC error correction protocols conform to H263++ and/or MPEG-4. See column 1 line 41, column 2 line 36.).*

Claim 34:

Heinzelman teaches the method according to claim 20 wherein the second error correction protocol conforms to video communications industry standards H263++ and/or MPEG-4 *(The first FEC and the second FEC error correction protocols conform to H263++ and/or MPEG-4. See column 1 line 41, column 2 line 36.).*

Claim 36:

Heinzelman teaches the method according to claim 20 further comprising the steps of:

transmitting the first encoded signal *(The motion data is transmitted first.);* and

transmitting a second encoded signal at a predetermined time after the transmitting of said first encoded signal *(The texture data is transmitted after the motion data, thus, the texture data is transmitted*

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after a predetermined time after the motion data is transmitted.).

Claim 38:

Heinzelman teaches the method according to claim 25 further comprising the step of:

combining the received foveated area and the received background area to create the video image data (*See column 5 lines 1-4 which describes receiving the encoded motion and texture areas and reconstructing the video to display or store the video.*).

Claim 45:

Claim 45 is broader than claim 20 because it claims less limitations than claim 20 claims. Lines 1-12 of claim 20 corresponds to claim 45. The difference between claim 45 and claim 20 is claim 20 further claimed a specific type of error correction protocol, FEC. Thus, the discussion of lines 1-12 of claim 20 apply to this claim. Further discussion of this claim is not necessary.

Claim 46:

Lines 12-17 of claim 25 corresponds to this claim. The discussion of lines 12-17 of claim 25 as well as lines 1-12 apply to this claim. Further discussion of this claim is not necessary.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 40-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinzelman et al., U.S. Patent No. 6,754,277, in view of applicant's admission of the prior art at page 8 lines 5-13.

Claim 40 corresponds to claim 20. The discussion of claim 20 and Heinzelman applies here. The only difference is claim 20 claims FEC error correction protocol while claim 40 claims ARQ error correction protocol.

Heinzelman does not appear to discuss ARQ error correction protocol.

Heinzelman discusses using FEC at column 3 lines 21-24 as "one method of adding error protection". Thus, Heinzelman suggests that other well known error protection protocols may be used.

Applicant at page 8 lines 5-13 states:

Since all communication channels are lossy, that is, they introduce errors or packet losses and delays, conventional communications protocols rely on either forward error correction (FEC) or automatic repeat request (ARQ), or both, for data error correction. In FEC techniques, a damaged message is rebuilt by detecting and correcting errors in the bitstream based on an additionally transmitted code word, while in ARQ, damaged message packets are retransmitted based on a Acknowledge/NotAcknowledge (ACK/NAK) feedback signal from the receiving station. Both protocols consume additional delay and overhead in order to be robust to poor channel conditions.

It would have been obvious to one of ordinary skill in the art to use ARQ in Heinzelman because in Heinzelman FEC is one example given by Heinzelman as one method of adding error protection, column 3 lines 21-22, other methods are suggested by this statement and since applicant admits that ARQ or FEC or both are commonly used for error protection and since Heinzelman and Applicant are concerned with having the highest error protection that a wireless system will allow.

Claims 41-44:

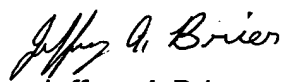
These dependent claims correspond directly to dependent claims 21-24 and the discussion of claims 21-24 apply to these claims. Further discussion of these claims are not necessary.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffery A Brier whose telephone number is (571) 272-7656. The examiner can normally be reached on M-F from 7:00 to 3:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi, can be reached at (571) 272-7664. The fax phone Number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jeffery A Brier
Primary Examiner
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